IN THE CLAIMS

1(Currently amended). A cell composition consisting essentially of ~~mammalian~~ human hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem ~~and progenitor~~ cells capable ~~to migrate~~ of migrating in response to stromal-derived factor 1 (SDF-1), ~~and/or capable to adhere to stromal cells in response to an adhesion-inducing agent~~ said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells being selected from the group consisting of stem cells that express CXCR4 on the cell surface, $CXCR4^{-/low}$ stems cells that have the potential to express CXCR4 on the cell surface and are converted to $CXCR4^{+}$ cells upon stimulation with a suitable agent, and combinations thereof, wherein said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells have the capacity of migrating to, and of engraftment and repopulation of, the bone marrow in a host.

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Claim 2 (cancelled)

3(Currently amended). The cell composition according to claim ~~2~~ 1, wherein the stem ~~and progenitor~~ cells are $CD34^{+}$ $CD38^{-/low}$ $CXCR4^{+}$cells.

4(Currently amended). The cell composition according to claim ~~2~~ 1, wherein the stem ~~and progenitor~~ cells are $CD34^{-}$ $CD38^{-/low}$ $CXCR4^{+}$ cells.

5(Currently amended). The cell composition according to claim 1, further comprising ~~also~~ $CD38^{high}$ stem ~~and progenitor~~ cells.

Claims 6-9 (cancelled)

10(Previously amended). The cell composition according to claim 1, wherein the cells are derived from bone marrow, cord blood, fetal liver, yolk sac or mobilized peripheral blood cells.

11(Currently amended). The cell composition according to claim ~~1~~ 53, wherein said adhesion-inducing agent ~~of $CXCR4^+$ cells to stromal cells~~ is a member selected from the group consisting of a cytokine, a lectin and a phorbol ester.

12(Currently amended). The cell composition according to claim ~~6~~ 1, wherein said suitable agent capable of converting $CXCR4^{-/low}$ ~~hematopoietic~~ stem cells into $CXCR4^+$ stem cells is member selected from the group consisting of a lectin, a cytokine, ~~and/or~~ at least one type of mammalian stromal cells, and ~~combinations~~ mixtures thereof, said cytokines and stromal cells being ~~those~~ cytokines and stromal cells involved in a process of maintenance, expansion, ~~and/or~~ development, or combinations thereof, of stem cells.

13(Currently amended). The cell composition according to claim 12, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, ~~and~~ GM-CSF ~~or a~~ and mixture thereof.

14(Currently amended). The cell composition according to claim 13, wherein said cytokine is a member selected from the group consisting of SCF, ~~and said mixture of cytokines is~~ a mixture of SCF and IL-6, and a mixture ~~or~~ of SCF and GM-CSF.

15(Currently amended). A method for increasing the population of hematopoietic $CXCR4^+$ stem ~~and progenitor~~ cells for use in clinical transplantation, which comprises up-regulating surface CXCR4 expression of hematopoietic stem ~~and progenitor~~ cells and sorting out those $CXCR4^+$ stem ~~and progenitor~~ cells that migrate in response to SDF-1.

16(Currently amended). The method according to claim 15, wherein said up-regulation is carried out by stimulation of a cellular population comprising hematopoietic $CXCR4^+$ and $CXCR4^{-/low}$ stem ~~and progenitor~~ cells that have the potential to express CXCR4 on the cell surface, with a suitable agent, thus converting

the $CXCR4^{-/low}$ into $CXCR4^{+}$ cells, and sorting out those $CXCR4^{+}$ stem ~~and progenitor~~ cells that migrate in response to SDF-1.

17(Currently amended). A method for the preparation of a cell composition according to claim 1, comprising stimulating with a suitable agent a cell composition comprising hematopoietic $CXCR4^{+}$ and $CXCR4^{-/low}$ stem ~~and progenitor~~ cells that have the potential to express CXCR4 on the cell surface, thus converting the $CXCR4^{-/low}$ into $CXCR4^{+}$ stem ~~and progenitor~~ cells, and sorting out those $CXCR4^{+}$ stem ~~and progenitor~~ cells that migrate in response to SDF-1.

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18(Currently amended). The method according to claim ~~16~~ 17, wherein said suitable agent capable of converting $CXCR4^{-/low}$ stem cells into $CXCR4^{+}$ stem cells is a member selected from ~~a~~ the group consisting of a lectin, a cytokine, at least one type of mammalian ~~and/or~~ stromal cells, and mixtures thereof, said cytokines and stromal cells being ~~those~~ cytokines and stromal cells involved in a process of maintenance, expansion, ~~and/or~~ development, or combinations thereof, of stem cells.

19(Currently amended). The method according to claim 18, wherein said cytokine is a member selected from the group

consisting of SCF, IL-1, IL-6, IL-11, ~~and~~ GM-CSF, ~~or a~~ and mixtures thereof.

20(Currently amended). The method according to claim 19, wherein said cytokine is a member selected from the group consisting of SCF, ~~and said mixture of cytokines is~~ a mixture of SCF and IL-6, and a mixture ~~or~~ of SCF and GM-CSF.

21(Original). The method according to claim 18, wherein the $CXCR4^{-/low}$ cells that have the potential to express CXCR4 on the cell surface are stimulated with at least one type of mammalian stromal cells involved in maintenance, expansion and/or development of stem cells.

Claim 22 (cancelled)

23(Currently amended). The method according to claim 18, wherein ~~stimulation is carried out with~~ the $CXCR4^{-/low}$ cells that have the potential to express CXCR4 on the cell surface are stimulated with at least one type of mammalian stromal cells and a cytokine or a mixture of cytokines.

24(Currently amended). The method according to claim 23, wherein stimulation is carried out with at least one type of

stromal cells and a cytokine selected from the group consisting of SDF-1, SCF, IL-1, IL-6, IL-11, ~~or~~ GM-CSF, ~~or with~~ a mixture of SCF and IL-6, ~~or~~ and a mixture of SCF and GM-CSF.

25(Currently amended). A method for increasing the population of hematopoietic stem ~~and progenitor~~ cells for use in clinical transplantation, which comprises inducing a cellular population of $CXCR4^+$ stem cells to adhere to stromal cells in response to an adhesion-inducing agent and sorting out those $CXCR4^+$ stem cells that adhered to the stromal cells in response to said agent.

26(Currently amended). The method according to claim 25, wherein said adhesion-inducing agent ~~of $CXCR4^+$ stem and progenitor cells to stromal cells is selected from~~ is selected from the group consisting of a cytokine, a lectin and a phorbol ester.

27(Original). The method according to claim 26, wherein said adhesion-inducing agent is SDF-1.

Claims 28-32 (cancelled)

33(Original). An *in vitro* method for screening human immature hematopoietic $CXCR4^+$ cells derived from bone marrow, cord blood, fetal liver, yolk sac or mobilized peripheral blood cells as candidates for transplantation into human hosts, said method comprising:

(a) measuring the level of cell surface CXCR4 expression in a separate sampling of cells with labeled anti-CXCR4 monoclonal antibodies;

(b) increasing, if necessary, the level of $CXCR4^+$ cells in the original sample by stimulation of $CXCR4^{-/low}$ cells with a suitable agent;

(c) measuring the $CXCR4^+$ cells' ability to migrate in response to SDF-1 and/or to adhere to stromal cells in response to an adhesion-inducing agent; and

(d) sorting out the $CXCR4^+$ cells with a high migratory capability in response to SDF-1 and/or the cells which adhered to the stromal cells, these being the cells suitable for successful transplantation into human hosts.

Claims 34-47 (cancelled)

48(Currently amended). A method for preparation of a cell composition consisting essentially of a cellular population of hematopoietic $CXCR4^+$ pluripotent stem cells ~~and committed~~

~~progenitor cells~~ capable to migrate in response to SDF-1, for autologous transplantation to a cancer patient, by ex vivo purging of malignant cells from a cancer patient while maintaining and enriching for normal hematopoietic $CXCR4^+$ stem cells ~~and progenitors~~, said method comprising:

(i) providing hematopoietic stem ~~and progenitor~~ cells from a cancer patient, the malignant cells of which patient do not migrate to a chemotactic gradient of SDF-1;

(ii) stimulating said hematopoietic stem ~~and progenitor~~ cells with a suitable agent to enhance their CXCR4 surface expression and response to SDF-1;

(iii) carrying out an in vitro transmigration assay with the stimulated cells of (ii) to a gradient of SDF-1 across a mechanical barrier of cells in order to prevent spontaneous non-specific migration of malignant cells;

(iv) washing the migrating cells to remove SDF-1; and

(v) isolating the cells obtained in (iv),

said isolated cells being hematopoietic $CXCR4^+$ stem ~~and progenitor~~ cells responsive to migration to SDF-1 and purged from the patient's malignant cells and suitable for autologous transplantation to the cancer patient.

49(Original). The method according to claim 48, wherein the hematopoietic cells are derived from the patient's bone marrow or mobilized peripheral blood cells.

Claims 50-52 (cancelled)

53(new). A cell composition consisting essentially of human hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells capable of adhering to stromal cells in response to an adhesion-inducing agent, said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells being selected from the group consisting of stem cells that express CXCR4 on the cell surface, stems cells that have the potential to express CXCR4 on the cell surface and are converted to $CXCR4^{+}$ cells upon stimulation with a suitable agent, and combinations thereof, wherein said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells have the capacity of migrating to, and of engraftment and repopulation of, the bone marrow in a host.

54(new). The cell composition according to claim 53, wherein the stem cells are $CD34^{+}$ $CD38^{-/low}$ $CXCR4^{+}$cells.

55(new). The cell composition according to claim 53, wherein the stem cells are $CD34^{-}$ $CD38^{-/low}$ $CXCR4^{+}$cells.

56(new). The cell composition according to claim 53, further comprising $CD38^{high}$ stem cells.

57(new). The cell composition according to claim 53, wherein the cells are derived from bone marrow, cord blood, fetal liver, yolk sac or mobilized peripheral blood cells.

58(new). The cell composition according to claim 53, wherein said suitable agent capable of converting $CXCR4^{-/low}$ stem cells into $CXCR4^{+}$ stem cells is a member selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

59(new). The cell composition according to claim 58, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

60(new). The cell composition according to claim 59, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$

stem cells by incubation for a period in the range of 1 to 5 days.

61(new). The cell composition according to claim 60, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

62(new). The cell composition according to claim 59, wherein said cytokine is a member selected from the group consisting of SCF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

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63(new). The cell composition according to claim 13, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

64(new). The cell composition according to claim 63, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

65(new). The method according to claim 16, wherein said suitable agent capable of converting $CXCR4^{-/low}$ stem cells into $CXCR4^{+}$ stem cells is a member selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

66(new). The method according to claim 65, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

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67(new). The method according to claim 66, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

68(new). The method according to claim 67, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

69. (new) The method according to claim 66, wherein said cytokine is a member selected from the group consisting of SCF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

70(new). The method according to claim 19, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

71(new). The method according to claim 70, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

72(new). The method according to claim 33, wherein said suitable agent in step (b) for converting $CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is a member selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

73(new). The method according to claim 72, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

74(new). The method according to claim 73, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

75(new). The method according to claim 74, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

76(new). The method according to claim 73, wherein said cytokine is a member selected from the group consisting of SCF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

77(new). The method according to claim 33, wherein said suitable agent in step (b) for converting $CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is at least one type of mammalian stromal cells involved in maintenance, expansion and/or development of stem cells.

78(new). The method according to claim 33, wherein said suitable agent in step (b) for converting $CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is at least one type of mammalian stromal cells and a cytokine or a mixture of cytokines.

79(new). The method according to claim 23, wherein stimulation is carried out with at least one type of stromal cells and a cytokine selected from the group consisting of SDF-1, SCF, IL-1, IL-6, IL-11, GM-CSF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

80(new). Pluripotent human hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells capable of migrating in response to stromal-derived factor 1 (SDF-1), said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells being selected from the group consisting of $CD38^{-/low}$ stem cells that express CXCR4 on the cell surface, $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor that can be converted into $CD38^{-/low}$ $CXCR4^{+}$ stem cells by stimulation with a suitable agent, and combinations thereof.

81(new). Pluripotent human hematopoietic stem cells according to claim 80, wherein the stem cells are $CD34^{+}$ $CD38^{-/low}$ $CXCR4^{+}$cells.

82(new). Pluripotent human hematopoietic stem cells according to claim 80, wherein the stem cells are $CD34^{-}$ $CD38^{-/low}$ $CXCR4^{+}$ cells.

83(new). Pluripotent human hematopoietic stem cells according to claim 80, wherein the cells are derived from bone marrow, cord blood, fetal liver, yolk sac or mobilized peripheral blood cells.

84(new). Pluripotent human hematopoietic stem cells according to claim 80, wherein said $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor are converted into $CD38^{-/low}$ $CXCR4^{+}$ stem cells by stimulation with a member selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

85(new). Pluripotent human hematopoietic stem cells according to claim 84, wherein said suitable agent for converting $CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is at least one type of mammalian stromal cells involved in maintenance, expansion and/or development of stem cells.

86(new). Pluripotent human hematopoietic stem cells according to claim 84, wherein said suitable agent for converting $CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is at least one type of mammalian stromal cells and a cytokine or a mixture of cytokines.

87. (new) Pluripotent human hematopoietic stem cells according to claim 84, wherein stimulation is carried out with at least one type of stromal cells and a cytokine selected from the group consisting of SDF-1, SCF, IL-1, IL-6, IL-11, GM-CSF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

88(new). Pluripotent human hematopoietic stem cells according to claim 84, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

89(new). Pluripotent human hematopoietic stem cells according to claim 88, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

90(new). Pluripotent human hematopoietic stem cells according to claim 89, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

91(new). Pluripotent human hematopoietic stem cells according to claim 88, wherein said cytokine is a member selected from the group consisting of SCF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF

92(new) Pluripotent human hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells capable of adhering to stromal cells in response to an adhesion-inducing agent, said hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells being selected from the group consisting of $CD38^{-/low}$ stem cells that express CXCR4 on the cell surface, $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor that are converted into $CD38^{-/low}$ $CXCR4^{+}$ stem cells by stimulation with a suitable agent, and combinations thereof.

93(new). Pluripotent human hematopoietic stem cells according to claim 92, which are capable of adhering to stromal cells in response to adhesion-inducing agent selected from the group consisting of a cytokine, a lectin and a phorbol ester.

94(new). Pluripotent human hematopoietic stem cells according to claim 92, wherein the stem cells are $CD34^{+}$ $CD38^{-/low}$ $CXCR4^{+}$cells.

95(new). Pluripotent human hematopoietic stem cells according to claim 92, wherein the stem cells are $CD34^{-}$ $CD38^{-/low}$ $CXCR4^{+}$ cells.

96(new). Pluripotent human hematopoietic stem cells according to claim 92, wherein the cells are derived from bone marrow, cord blood, fetal liver, yolk sac or mobilized peripheral blood cells.

97(new). Pluripotent human hematopoietic stem cells according to claim 92, wherein said $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor are converted into $CD38^{-/low}$ $CXCR4^{+}$ stem cells by stimulation with a member selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

98(new). Pluripotent human hematopoietic stem cells according to claim 97, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

99(new). Pluripotent human hematopoietic stem cells according to claim 98, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

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100(new). Pluripotent human hematopoietic stem cells according to claim 99, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

101(new). Pluripotent human hematopoietic stem cells according to claim 98, wherein said cytokine is a member selected from the group consisting of SCF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF

102(new). Pluripotent human hematopoietic stem cells according to claim 97, wherein said suitable agent for converting

$CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is at least one type of mammalian stromal cells involved in maintenance, expansion and/or development of stem cells.

103(new). Pluripotent human hematopoietic stem cells according to claim 97, wherein said suitable agent for converting $CXCR4^{-/low}$ cells into $CXCR4^{+}$ cells by stimulation is at least one type of mammalian stromal cells and a cytokine or a mixture of cytokines.

104(new). Pluripotent human hematopoietic stem cells according to claim 103, wherein stimulation is carried out with at least one type of stromal cells and a cytokine selected from the group consisting of SDF-1, SCF, IL-1, IL-6, IL-11, GM-CSF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

105(new). Pluripotent human hematopoietic $CD38^{-/low}$ $CXCR4^{+}$ stem cells capable to migrate in response to stromal-derived factor 1 (SDF-1), obtained by the process of stimulating with a suitable agent a population of $CD38^{-/low}$ stem cells that express the CXCR4 receptor on the cell surface (herein $CD38^{-/low}$ $CXCR4^{+}$ stem cells) and $CD38^{-/low}$ stem cells in which the CXCR4 receptor is internalized (herein $CXCR4^{-/low}$ $CD38^{-/low}$ stem cells),

and sorting out those $CXCR4^+$ stem cells that migrate in response to SDF-1.

106(new). Pluripotent human hematopoietic stem cells according to claim 105, wherein the stem cells are $CD34^+$ $CD38^{-/low}$ $CXCR4^+$cells.

107(new). Pluripotent human hematopoietic stem cells according to claim 105, wherein the stem cells are $CD34^-$ $CD38^{-/low}$ $CXCR4^+$ cells.

108(new). Pluripotent human hematopoietic stem cells according to claim 105, wherein the cells are derived from bone marrow, cord blood, fetal liver, yolk sac or mobilized peripheral blood cells.

109(new). Pluripotent human hematopoietic stem cells according to claim 105, obtained by stimulation of $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor with a member selected from the group consisting of a lectin, a cytokine, at least one type of mammalian stromal cells, and mixtures thereof, said cytokines and stromal cells being cytokines and stromal cells involved in a process of maintenance, expansion, development, or combinations thereof, of stem cells.

110(new). Pluripotent human hematopoietic stem cells according to claim 109, wherein said cytokine is a member selected from the group consisting of SCF, IL-1, IL-6, IL-11, GM-CSF, and mixtures thereof.

111(new). Pluripotent human hematopoietic stem cells according to claim 110, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines and converted into $CXCR4^{+}$ stem cells by incubation for a period in the range of 1 to 5 days.

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112(new). Pluripotent human hematopoietic stem cells according to claim 111, wherein the $CXCR4^{-/low}$ stem cells are stimulated with said cytokine or mixture of cytokines cells and converted into $CXCR4^{+}$ stem cells by incubation for a period of 1 to 2 days.

113(new). Pluripotent human hematopoietic stem cells according to claim 110 wherein said cytokine is a member selected from the group consisting of SCF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.

114(new). Pluripotent human hematopoietic stem cells according to claim 105, obtained by stimulation of $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor with at least one type of mammalian stromal cells involved in maintenance, expansion and/or development of stem cells.

115(new). Pluripotent human hematopoietic stem cells according to claim 105, obtained by stimulation of $CD38^{-/low}$ $CXCR4^{-/low}$ stem cells having an internalized CXCR4 receptor with at least one type of mammalian stromal cells and a cytokine or a mixture of cytokines.

116(new). Pluripotent human hematopoietic stem cells according to claim 115, wherein stimulation is carried out with at least one type of stromal cells and a cytokine selected from the group consisting of SDF-1, SCF, IL-1, IL-6, IL-11, GM-CSF, a mixture of SCF and IL-6, and a mixture of SCF and GM-CSF.